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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,604	12/22/2003	Michael Francis Henry	127061-1	7560

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
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NISKAYUNA, NY 12309

EXAMINER

ROE, JESSEE RANDALL

ART UNIT PAPER NUMBER

1742

DATE MAILED: 12/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,604

Applicant(s)

HENRY ET AL.

Examiner

Jessee Roe

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 4, 10, 15 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-9, 11-14, 16-22 and 24-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>22 December 2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

Claims 1-3, 5-9, 11-14, 16-22, and 24-26 are currently under examination and claims 4, 10, 15 and 23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected alloy species comprising about 6.25-7.25% by weight cobalt, there being no allowable generic or linking claim. Election was made *without* traverse in the reply filed on 29 September 2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 5-8, 11-13, 20-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry (US 4,284,430).

In regards to claims 1-2, 7-8, 12-13 and 20-21, Henry ('430) discloses (claim 6 and col. 4, lines 30-60) a nickel-based composition. The table on the following page compares the disclosed nickel-based composition of Henry ('430) with that of the claimed invention.

The Examiner notes that the disclosed nickel-based composition overlaps with the composition of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05 I. It would have been obvious to one of

ordinary skill in the art at the time the invention was made to select the claimed nickel-based composition from the disclosed nickel-based composition of Henry ('430) because Henry ('430) teaches an alloy with compositions throughout the whole disclosed ranges.

Element	From Instant Claims (weight percent)	('430) (weight percent)	Overlapping range
From Instant Claims 1, 7, 12 and 20			
Al	about 5.0%-7.0%	about 0%-10.0%	about 5.0%-7.0%
C	about 0.10%-0.50%	about 0.10%-1.0%	about 0.10%-0.50%
Co	about 3.0%-13.0%	about 0%-10.0%	about 3.0%-10.0%
Cr	about 2.0%-7.0%	about 0%-10.0%	about 2.0%-7.0%
Re	about 2.0%-7.0%	about 2.0%-9.0%	about 2.0%-7.0%
Ta	about 10.0%-13.0%	about 3.0%-15.0%	about 10.0%-13.0%
W	about 4.0%-7.0%	about 0%-10%	about 4.0%-7.0%
Ni	remainder	remainder	remainder
From Instant Claims 2, 8, 13 and 21			
Ti	about 0.80%-1.8%	less than 0.8%	about 0.80%

In regards to the claimed content of B, Mo, Nb, V, and Hf the claim language "up to" indicates that their composition within the nickel-based alloy may be 0 weight percent. This would be the case for Henry ('430).

In regards to claims 5, 6 & 11, Henry ('430) discloses that the nickel-based alloy comprises an aligned eutectic reinforcing fibrous phase comprising a carbide, primarily tantalum carbide (col. 4, lines 55-68).

Still regarding claims 7 & 20 and regarding claim 24, Henry ('430) also discloses that the nickel-based alloy comprises an aligned eutectic reinforcing fibrous phase. The eutectic fibrous phase would comprise primarily tantalum carbide (col. 4, lines 55-68).

Claims 1-2, 7-8, 12-13, 18-19 and 25-26 are rejected under 35 U.S.C. 103(a) as

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being unpatentable over Akira et al. (JP 07-145703).

In regards to claims 1-2, 7-8, 12-13 and 20-21, Akira et al. (JP 07-145703) discloses (abstract) a nickel-based composition. The table on the following page compares the disclosed nickel-based composition of Akira et al. ('703) with that of the claimed invention.

The Examiner notes that the disclosed nickel-based composition overlaps with the composition of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed nickel-based composition from the disclosed nickel-based composition of Akira et al. ('703) because Akira et al. ('703) teaches an alloy with compositions throughout the whole disclosed ranges.

Element	From Instant Claims (weight percent)	('703) (weight percent)	Overlapping range
From Instant Claims 1, 7, 12, & 20			
Al	about 5.0%-7.0%	4.0%-7.0%	about 5.0%-7.0%
C	about 0.10%-0.50%	0%-0.20%	about 0.10%-0.20%
Co	about 3.0%-13.0%	0%-10.5%	about 3.0%-10.5%
Cr	about 2.0%-7.0%	2.0%-16.0%	2.0%-7.0%
Re	about 2.0%-7.0%	0%-4.0%	about 2.0%-4.0%
Ta	about 10.0%-13.0%	0%-12.0%	about 10.0%-12.0%
W	about 4.0%-7.0%	2%-15.0%	about 4.0%-7.0%
B	0%-about 0.025%	0%-0.035%	0%-about 0.025%
Mo	0%-about 5%	0%-6.0%	0%-about 5%
Nb	0%-about 1%	0%-3.0%	0%-about 1%
Hf	0%-about 0.2%	0%-2.0%	0%-about 0.2%
Zr	0%-about 0.1%	0%-0.035%	0%-0.035%
Ni	remainder	remainder	remainder
From Instant Claims 2, 8, 13, & 21			
Ti	about 0.80%-1.8%	about 0.50%-5.0%	about 0.80%-1.8%

In regards to the claimed content of V, the claim language "up to" indicates that the composition within the nickel-based alloy may be 0 weight percent. This would be the case for Akira et al. ('703).

In regards to claims 18-19 and 25-26, Akira et al. ('703) disclose (abstract) using the nickel-based composition for a gas turbine blade, a dovetail, a shank unit, and fins.

Claims 1-3, 5-9, 11-14, 16-17, 20-21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gigliotti et al. (US 4,292,076).

In regards to claims 1-2, 7-8, 12-13 and 20-21, Gigliotti et al. ('076) discloses a nickel-based composite body (claim 6 and col. 5, lines 1-20). The table on the following page compares the disclosed nickel-based composition of Gigliotti et al. ('076) with that of the claimed invention.

The Examiner notes that the disclosed nickel-based composition overlaps with the composition of the claimed invention. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed nickel-based composition from the disclosed nickel-based composition of Gigliotti et al.('076) because Gigliotti et al. ('076) teaches an alloy with compositions throughout the whole disclosed ranges.

Element	From Instant Claims (weight percent)	('076) (weight percent)	Overlapping range
From Instant Claims 1, 7, 12 & 20			
Al	about 5.0%-7.0%	0%-10.0%	about 5.0%-7.0%
C	about 0.10%-0.50%	0.10%-0.80%	0.10%-0.50%
Co	about 3.0%-13.0%	0%-20.0%	about 3.0%-13.0%
Cr	about 2.0%-7.0%	0%-20.0%	about 2.0%-7.0%
Re	about 2.0%-7.0%	0%-9.0%	about 2.0%-7.0%
Ta	about 10.0%-13.0%	3%-15.0%	about 10.0%-13.0%
W	about 4.0%-7.0%	0%-20.0%	about 4.0%-7.0%
B	0%-about 0.025%	0.001%-0.02%	0.001%-about 0.02%
Mo	0%-about 5%	0%-10.0%	0%-about 5%
Hf	0%-about 0.2%	less than 0.15%	0%-about 0.15%
Zr	0%-about 0.1%	0%-1.5%	0%-about 0.1%
V	0%-about 1.0%	0%-7%	0%-about 1.0%
Ni	remainder	remainder	remainder
From Instant Claims 2, 8, 13 & 21			
Ti	about 0.80%-1.8%	about 0.50%-5.0%	about 0.80%-1.8%

In regards to the claimed content of Nb the claim language "up to" indicates that their composition within the nickel-based alloy may be 0 weight percent. This would be the case for Gigliotti ('430).

Still regarding claims 7 & 20 and regarding claim 24, Henry ('430) also discloses that the nickel-based alloy comprises an aligned eutectic reinforcing fibrous phase. The eutectic fibrous phase would comprise primarily tantalum carbide (abstract and col. 1, lines 1-40).

In regards to claims 3, 9 and 14, Gigliotti et al. ('076) discloses a nickel-based composite body (claim 6 and col. 5, lines 1-20). The table on the following page compares the disclosed nickel-based composition of Gigliotti et al. ('076) with that of the claimed invention.

The Examiner notes that the disclosed nickel-based composition overlaps with the composition of the claimed invention. Therefore, a prima facie case of

obviousness exists. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed nickel-based composition from the disclosed nickel-based composition of Gigliotti et al.('076) because Gigliotti et al. ('076) teaches an alloy with compositions throughout the whole disclosed ranges.

Element	From Instant Claims (weight percent)	('076) (weight percent)	Overlapping range
From Instant Claims 3, 9 and 14			
Al	about 5.0%-6.0%	0%-10.0%	about 5.0%-6.0%
C	about 0.15%-0.30%	0.10%-0.80%	0.15%-0.30%
Co	about 11.0%-13.0%	0%-20.0%	about 11.0%-13.0%
Cr	about 3.0%-5.0%	0%-20.0%	about 3.0%-5.0%
Re	about 4.5%-5.6%	0%-9.0%	about 4.5%-5.6%
Ta	about 10.0%-12.0%	3.0%-15.0%	about 10.0%-12.0%
W	about 5.0%-6.0%	0%-20.0%	about 5.0%-6.0%
V	0%-about 1.0%	0%-7.0%	0%-about 1.0%
Mo	about 0.8%-1.8%	0%-10.0%	about 0.8%-1.8%
Hf	0%-about 0.2%	less than 0.15%	0%-about 0.15%
Zr	0%-about 0.1%	0%-1.5%	0%-about 0.1%
Ni	remainder	remainder	remainder

In regards to the claimed content of Nb the claim language "up to" indicates that their composition within the nickel-based alloy may be 0 weight percent. This would be the case for Gigliotti ('430).

In regards to claims 5, 6, 11,16-17 and 24, Gigliotti et al. ('076) discloses a nickel-based composite with eutectic reinforcing fibrous phase comprising tantalum carbide (col. 1, lines 1-40).

Claims 18-19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gigliotti et al. (US 4,292,076) in view of Akira et al. (JP 07-145703).

In regards to claim 18-19 and 25-26, Gigliotti et al. ('076) disclose a nickel-based composition as shown above. However, Gigliotti et al. ('076) does not specify that the nickel-based composition would be used for a gas turbine engine component or a turbine airfoil.

Akira et al. ('703) discloses an analogous nickel-based alloy with a crystal coagulated in one direction (same crystal structure as in the instant invention) that is used for a gas turbine engine components such as a dovetail, a shank unit, and fins. Using directionally solidified nickel-based alloys for gas turbine components provides components that have excellent creep strength and lack intercrystalline crack due to blade movement.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the nickel-based alloy, as disclosed by Gigliotti ('076), when fabricating gas turbine engine components such as, a platform, a dovetail, a shank unit, or a fin, as disclosed by Akira et al. ('703), in order to provide gas turbine components that have excellent creep strength and lack inter-crystalline crack due to blade movement, as disclosed by Akira et al. ('703).

Claims 18-19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henry (US 4,284,430) in view of Akira et al. (JP 07-145703).

In regards to claim 18-19 and 25-26, Henry ('430) discloses a nickel-based composition as shown above. However, Henry ('430) does not specify that the nickel-based composition would be used for a gas turbine engine component or a

turbine airfoil.

Akira et al. ('703) discloses an analogous nickel-based alloy with a crystal coagulated in one direction (same crystal structure as the claimed invention) that is used for a gas turbine engine components such as a platform, a dovetail, a shank unit, and a fin. Using directionally solidified nickel-based alloys for gas turbine components provides components that have excellent creep strength and lack intercrystalline crack due to blade movement.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the nickel-based alloy, as disclosed by Henry ('430), when fabricating the a gas turbine blade, a dovetail, a shank unit, or fins, as disclosed by Akira et al. ('703), in order to provide gas turbine components that have excellent creep strength and lack inter-crystalline crack due to blade movement, as disclosed by Akira et al. ('703).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessee Roe whose telephone number is (571) 272-5938. The examiner can normally be reached on Monday-Friday 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JR

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